



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,911	05/01/2006	Kurato Maeno	KAN 164NP	6888
23995	7590	10/05/2009		
RABIN & Berdo, PC 1101 14TH STREET, NW SUITE 500 WASHINGTON, DC 20005			EXAMINER MACKOWEY, ANTHONY M	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 10/05/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/577,911

**Applicant(s)**

MAENO, KURATO

**Examiner**

ANTHONY MACKOWEY

**Art Unit**

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 5/1/08, 1/11/08
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on May 1, 2006 and January 11, 2008 have been considered by the examiner. Examiner does note that the sole reference cited in the IDS submitted January 11, 2008, identified as US 2003/021442 corresponds to a document already cited in the IDS submitted May 1, 2006, US 2003/0021442.

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it is currently comprises two paragraphs. Correction is required. See MPEP § 608.01(b).

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The disclosure is objected to because of the following informalities:

Page 25, lines 5 and 6; page 26, line 4; page 34, line 10; and page 37, line 27, all recite "filer." In context of the disclosure, it appears this term should be "filter."

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19, 22, 41 and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19 and 41 recite the limitation "the output value of the filter" in line 3. There is insufficient antecedent basis for this limitation in the claim. There is no previous recitation of a filter in claims 19 and 41 or the claims from which they depend.

Claims 22 and 44 recite the limitation "wherein the detecting portion (step) uses a filter using the maximum value or minimum value of the density, luminance, saturation or chromaticity of a pixel in a specific surrounding range as part of a sample value upon detection of an edge." The claim is indefinite because it is unclear what the specific surrounding range actually surrounds. What does the range specifically surround?

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-21, 23-43 and 45-55 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2003/0021442 to Suzuki et al. (cited in Applicant's IDS, hereafter referred to as "Suzaki").

As to claim 1, Suzuki discloses a watermark information embedding apparatus for embedding information into an image by electronic watermark technology (Figs. 1, 2, and 8; page 2-5, paragraphs 41-46 and 51-93) comprising:

a coding portion for coding embedding information to be embedded into an image (Figs. 1 and 2; page 3, paragraphs 44 and 56);

a pattern allocating portion for allocating a pattern to each symbol of the coded embedding information (Figs. 1 and 2; page 3, paragraphs 44 and 57 ); and

a disposing portion for disposing the pattern corresponding to the embedding information on the image regularly (Figs. 1 and 2; pages 3-5, paragraphs 44, 45, 58, 68 and 88-91),

wherein one or more patterns having a predetermined spatial frequency are allocated to each symbol (pages 3-4, paragraphs 44, 57 and 61-69).

As to claim 23, Suzuki discloses a watermark information embedding method for embedding information in an image by electronic watermark technology (Figs. 1, 2, and 8; page 2-5, paragraphs 41-46 and 51-93), comprising:

coding step of coding embedding information to be embedded into an image (Figs. 1 and 2; page 3, paragraphs 44 and 56);

a pattern allocating step of allocating a pattern to each symbol of the coded embedding information (Figs. 1 and 2; page 3, paragraphs 44 and 57 ); and

a disposing step of disposing the pattern corresponding to the embedding information in the image regularly (Figs. 1 and 2; pages 3-5, paragraphs 44, 45, 58, 68 and 88-91),

wherein one or more patterns having a predetermined spatial frequency are allocated to each symbol (pages 3-4, paragraphs 44, 57 and 61-69).

As to claim 45, Suzuki discloses a printed material outputted with information embedded in an image by electronic watermark technology (page 3, paragraph 46),

wherein one or more patterns having a predetermined spatial frequency allocated to each symbol are allocated to the symbol that codes the embedding information to be embedded into an image and the pattern corresponding to the embedding information is disposed in the image regularly (Figs. 1, 2 and 8, pages 2-5, paragraphs 41-46 and 51-

93).

As to claims 2, 24 and 46, Suzuki further discloses the pattern is a pattern composed of plural pixels having a specific frequency and direction (Figs. 3-5; pages 3-4, paragraphs 44 and 61-69).

As to claims 3, 25 and 47, Suzuki further discloses the pattern specifies a corresponding symbol by a direction in which the frequency component is strong (Figs. 3-5; pages 3-4, paragraphs 44 and 61-69).

As to claims 4, 26 and 48, Suzuki further discloses the pattern has an edge component having frequencies perpendicular to each other and specifies a corresponding symbol by a direction of an edge component in which the frequency is strong (Figs. 3-5; pages 3-4, paragraphs 44 and 61-69).

As to claims 5, 27 and 49, Suzuki further discloses the pattern has horizontal and vertical edge components having a specific frequency and specifies a corresponding symbol by the direction of an edge component in which the frequency is strong (Figs. 3-5; pages 3-4, paragraphs 44 and 61-69).

As to claims 6, 28 and 50, Suzuki further discloses two or more patterns having a near frequency and direction are allocated to each symbol (page 4, paragraphs 61-69).

As to claims 7, 29 and 51, Suzuki further discloses the disposing portion (step) compares a pixel on an image with a pixel of a pattern in the terms of pixel unit when the pattern is disposed and changes over whether or not the pattern is disposed in the terms of pixel unit (page 5, paragraph 91).

As to claims 8, 30 and 52, Suzuki further discloses the comparison is carried out with the value of pixel (page 5, paragraph 91).

As to claims 9, 31 and 53, Suzuki further discloses the comparison is carried out by determining whether the pixel on the image is a pixel constituting the foreground or a pixel constituting the background and whether a pixel of the pattern is a pixel constituting the foreground or a pixel constituting the background (pages 3 and 5, paragraphs 52, 57 and 91).

As to claims 10, 32 and 54, Suzuki further discloses the disposing portion (step) disposes a pattern only when the pixel on the image is a pixel constituting the background (page 5, paragraph 91).

As to claims 11, 33 and 55, Suzuki further discloses the pattern is a pattern keeping contact with an adjacent pattern (pages 4 and 5, paragraphs 70 and 88).



As to claims 12 and 34, Suzuki further discloses an imaging portion (step) for converting arbitrary data to the image (Fig. 1; page 3, paragraph 52).

As to claims 13 and 35, Suzuki further discloses a printing portion (step) for printing an image in which the embedding information is embedded in a printable medium (page 3, paragraphs 45-46).

As to claim 14, Suzuki discloses a watermark information detecting apparatus for detecting an embedding information embedded in an image by electronic watermark technology, comprising a detecting portion for detecting a pattern corresponding to the embedding information, wherein the pattern is a pattern disposed in the image by the watermark information embedding apparatus according to claim 1 (Figs 1, 12 and 18; pages 3 and 6-8; paragraphs 47-49 and 94-135).

As to claim 36, Suzuki discloses a watermark information detecting method for detecting an embedding information embedded in an image by electronic watermark technology, comprising a detecting step of detecting a pattern disposed in the image and corresponding to the embedding information, wherein the pattern is a pattern disposed in the image by the watermark information embedding method according to claim 23 (Figs 1, 12 and 18; pages 3 and 6-8; paragraphs 47-49 and 94-135).

As to claims 15 and 37, Suzuki further discloses the pattern is a pattern deteriorated more than when it is embedded (page 6, paragraph 102).

As to claims 16 and 38, Suzuki further discloses the detecting portion (step) determines a symbol corresponding to the pattern from a detected pattern and restores the embedding information by connecting the symbol (Figs. 1, 12 and 18; page 3, paragraphs 48-49; page 6-7, paragraphs 100-130).

As to claims 17 and 39, Suzuki further discloses the detecting portion (step) carries out filter processing to a minute region in an image by scanning a region larger than the minute region in the image (pages 6-7, paragraphs 103-120).

As to claims 18 and 40, Suzuki further discloses a peak value of the filter output value is searched for by the unit in which a pattern is recorded from a scanned filter processing result so as to specify a pattern position (pages 6-7, paragraphs 103-120).

As to claims 19 and 41, Suzuki further discloses the detecting portion (step) specifies a pattern depending on whether the output value of the filter is positive or negative (page 7, paragraphs 118-120, symbol to the unit pattern is judged to be at a given position or it may be determined that judgment is impossible) .

As to claims 20 and 42, Suzuki further discloses the detecting portion (step) uses a filter for reducing a reaction to a pattern of an opposite phase (page 6, paragraph 103, Suzuki discloses using a template to carry out pattern matching as an alternative to the Gabor filter).

As to claims 21 and 43, Suzuki further discloses the detecting portion (step) uses a filter capable of detecting a signal properly even if the frequency of a pattern drops (pages 6 and 8, paragraphs 96, 102, 141 and 142, the resolution of the input image is allowed to be a little different from the resolution of the watermarked image formed at embedding, and the signal can be detected even in the case of noise and staining).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior Art cited in the Notice of Reference cited as considered pertinent to applicant's disclosure as they are drawn to various aspects of digital watermarking and printed pattern watermarks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY MACKOWEY whose telephone number is (571)272-7425. The examiner can normally be reached on M-F 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571)272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AM  
9/30/09

/Brian P. Werner/  
Supervisory Patent Examiner, Art Unit 2624